

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of: Irit LOY et al  
Appln. No. 09/887,576  
Date Filed: June 25, 2001  
For: DATA MANAGEMENT APPLICATION PROGRAMMING INTERFACE...

Art Unit: 2177  
Examiner: Kuen S. LU  
Washington, D.C.  
Atty.'s Docket: LOY=3  
Date: August 31, 2004

**Confirmation No. 7562**

Honorable Commissioner for Patents  
U.S. Patent and Trademark Office  
2011 South Clark Place  
Customer Window, Mail Stop **Amendment**  
Crystal Plaza Two, Lobby, Room 1B03  
Arlington, Virginia 22202

Sir:

Transmitted herewith is a [X] **RESPONSE** in the above-identified application.

- [ ] Small entity status of this application under 37 CFR 1.9 and 1.27 has been established by a verified statement previously submitted  
[ ] Applicant claims small entity status. See 37 C.F.R. §1.27.  
[XX] No fee is required.  
[ ] The fee has been calculated as shown below:

	(Col. 1)		(Col. 2)		(Col. 3)
	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NO. PREVIOUSLY PAID FOR		PRESENT EXTRA EQUALS
TOTAL	* 69	MINUS	** 69		
INDEP.	* 3	MINUS	*** 3		
FIRST PRESENTATION OF MULTIPLE DEP. CLAIM					

SMALL ENTITY	
RATE	ADDITIONAL FEE
x 9	\$
x 43	\$
+ 145	\$
ADDITIONAL FEE TOTAL	
\$	

OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE
x 18	\$
x 86	\$
+ 290	\$
TOTAL	
\$	

- \* If the entry in Col. 1 is less than the entry in Col. 2, write "0" in Col. 3.  
\*\* If the "Highest Number Previously Paid for" IN THIS SPACE is less than 20, write "20" in this space.  
\*\*\* If the "Highest Number Previously Paid for" IN THIS SPACE is less than 3, write "3" in this space.

The "Highest Number Previously Paid For" (total or independent) is the highest number found from the equivalent box in Col. 1 of a prior amendment of the number of claims originally filed.

- [XX] Conditional Petition for Extension of Time  
If any extension of time for a response is required, applicant requests that this be considered a petition therefor.

- [ ] It is hereby petitioned for an extension of time in accordance with 37 CFR 1.136(a). The appropriate fee required by 37 CFR 1.17 is calculated as shown below:

Small Entity  
Response Filed Within  
[ ] First - \$ 55.00  
[ ] Second - \$ 210.00  
[ ] Third - \$ 475.00  
[ ] Fourth - \$ 740.00  
Month After Time Period Set

Other Than Small Entity  
Response Filed Within  
[ ] First - \$ 110.00  
[ ] Second - \$ 420.00  
[ ] Third - \$ 950.00  
[ ] Fourth - \$ 1480.00  
Month After Time Period Set

- [ ] Less fees (\$ ) already paid for month(s) extension of time on .  
[ ] Credit Card Payment Form, PTO-2038, is attached, authorizing payment in the amount of \$ .

- [XX] The Commissioner is hereby authorized and requested to charge any additional fees which may be required in connection with this application or credit any overpayment to Deposit Account No. 02-4035. This authorization and request is not limited to payment of all fees associated with this communication, including any Extension of Time fee, not covered by check or specific authorization, but is also intended to include all fees for the presentation of extra claims under 37 CFR §1.16 and all patent processing fees under 37 CFR §1.17 throughout the prosecution of the case. This blanket authorization does not include patent issue fees under 37 CFR §1.18.

BROWDY AND NEIMARK

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

ATTY.'S DOCKET: LOY=3

In re Application of:	)	Art Unit: 2177
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Irit LOY et al	)	Examiner: KUEN S. LU
	)	
Appln. No.: 09/887,576	)	Washington, D.C.
	)	
Date Filed: June 25, 2001	)	Confirmation No.: 7562
	)	
For: DATA MANAGEMENT APPLICATION	)	August 31, 2004
PROGRAMMING INTERFACE	)	
HANDLING MOUNT ON MULTIPLE	)	
NODES IN A PARALLEL FILE	)	
SYSTEM	)	

**RESPONSE**

Mail Stop **Amendment**  
Honorable Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In response to an Official Action dated June 9, 2004, Applicant respectfully submits the following remarks.

This application contains claims 1-69, all of which were rejected in the present Official Action. Reconsideration is respectfully requested in view of the remarks presented below.

Claims 1-9, 17-21, 23-31, 39-43, 45-53 and 61-69 were rejected under 35 U.S.C. 103(a) over SunC22 (*Sun Cluster 2.2 Software Installation Guide*) in view of Cramer et al.

(U.S. Patent 5,946,685). Applicant respectfully traverses this rejection.

Claim 1 is drawn to a method for managing data storage, in which a session of a data management (DM) application is initiated on one node in a cluster, and a request is submitted to parallel file system software on a second node to mount a file system on the second node. In response, a mount event message is sent from the second node to the first node for processing by the DM application on the first node.

SunC22 describes a software environment that provides high availability (HA) support for data services and parallel database access on a cluster of servers. The system allows database access through several cluster nodes and provides failover facilities, so that if a node fails, users can continue to access data through another node without significant delay (page 1-1). "The purpose of the Sun Cluster system is to avoid the loss of service by managing failures... Every hardware component has a backup that can take over for a failed component" (page 1-2). "In all Sun Cluster configurations, two or more nodes are physically connected to a set of shared disks... In HA configurations... a server can access data on a multihost disk when it is the current master of that disk. In the event of failure of one of the... servers,

the data services fail over to another server in the cluster”  
(page 1-9, emphasis added).

In other words, although SunC22 may support parallel database access, it does not use parallel file system software. Rather, SunC22 uses a conventional client/server model, in which only one server may access the file system at any given time. The Examiner cites page C-5, which refers to mounting of a HA multihost file system, and maintains that this passage teaches “global mounting” of a parallel file system. (As was confirmed in a telephone conference with the Examiner, reference in this context to page 24 of SunC22 was an error, and should have been deleted.) The cited passage, however, refers only to creating a single mount point for each file system created on the disk group. In fact, SunC22 explicitly teaches away from any sort of “global mounting”: “The same file system cannot be mounted by more than one node at the same time” (page 2-17, section 2.2.8.3, emphasis added). By contrast, as noted in the specification of the present patent application (page 7, line 19 - page 8, line 4): “It is a characteristic of parallel file systems that multiple instances of the same file system may be mounted on different nodes in the cluster...”

As noted in Applicant’s response to the previous Official Action in this case, “global mounting” of a file

system does not require or imply that the file system is necessarily parallel. Cramer describes a global mount mechanism in a distributed computing system, which uses a "distributed file system" (col. 3, lines 34-35). A key characteristic of distributed file systems is that, with respect to any file system resource, "one node can act as the server computer for the resource, and the other nodes as client computers" (col. 3, lines 26-28). This client/server model is basic to the mount mechanism that is implemented in Cramer's system. Although the classification of client and server can vary over time, there is always one, clearly-defined server for any given file system resource at any given time. The distinction between distributed file systems, such as that described by Cramer, and parallel file systems was explained clearly in the response to the previous Official Action.

Thus, neither SunC22 nor Cramer teaches or suggests the step of "receiving a request submitted to the parallel file system software... to mount one of the file systems," as recited in claim 1. Therefore, claim 1 is believed to be patentable over the cited art.

Furthermore, even if SunC22 (or some other reference) were conceded to describe mounting of a parallel file system, neither SunC22 nor Cramer teaches or suggests the

step of "sending a mount event message from the second node to the first node responsive to the request," as recited in claim 1. In reference to the step of "receiving a request submitted... at a second one of the nodes," the Examiner associates the "second node" with Cramer's "requesting node" (col. 9, line 23). The Examiner then goes on to associate the "sending" step with the statement in Cramer that "information is also returned to the requesting node" (col. 9, lines 58-60). Transposing this statement into the context of claim 1, Cramer is describing a step of sending a message to the second node. By contrast, claim 1 recites sending a mount event message from the second node to the first node.

With respect to the dependent claims, Applicant still maintains that there is insufficient basis in SunC22 and Cramer to support the obviousness rejection of these claims. Returning to the example of claims 8 and 9 raised in response to the previous Official Action, Applicant notes once again that these claims recite the use of novel flags in mount and unmount event messages in order to permit the first node to determine the source of mount and unmount requests. The passages in Cramer that were associated by the Examiner with claims 8 and 9 (col. 5, lines 15-23, col. 9, lines 47-53, and col. 12, lines 22-31) simply have nothing to do with flags or event messages. Even if it were conceded that SunC22

describes a parallel file system, there is still no teaching or suggestion in the cited art of the types of flags and event messages recited in claims 8 and 9. These claims are thus believed to be independently patentable.

As another example, claim 67, which depends from claim 1, recites the added limitation that the request to mount the parallel file system software is submitted by a user application running on the second one of the nodes, i.e., on the node on which the file system is to be mounted. The mount event message is sent to a different node, i.e., to the first node. Cramer neither teaches nor suggests that a mount event message be sent to a node that is neither the node on which the file system is mounted nor the node that has requested the mount, as required by claim 67. This claim is therefore also believed to be independently patentable. Comparable arguments may be made against the rejection of the other dependent claims. For the sake of brevity, however, and in view of the patentability of claim 1, these arguments are omitted here.

Thus, to summarize, Applicant respectfully submits that claims 1-9 and 17-21 and 67 are patentable over the cited art.

Claims 23 and 45 respectively recite computing apparatus and a computer software product, which operate on

principles similar to the method of claim 1, in the explicit context of parallel file systems. Therefore, for the reasons stated above, claims 23 and 45 are likewise believed to be patentable over the cited art. In view of the patentability of these independent claims, dependent claims 24-31, 39-43, 46-53, 61-65, 68 and 69 are believed to be patentable, as well.

Claims 10-16, 32-38 and 54-60 were rejected under 35 U.S.C. 103(a) over SunC22 in view of Cramer and further in view of in view of Dugan et al. (U.S. Patent 6,363,411), while claims 22, 44 and 66 were rejected under 35 U.S.C. 103(a) over SunC22 in view of Cramer and further in view of Vahalia et al. (U.S. Patent 6,192,408). In view of the patentability of independent claims 1, 18 and 35, from which these claims depend, Applicant believes these dependent claims to be patentable, as well, over the cited art.

Applicant has studied the additional references that were made of reference by the Examiner, and believes the claims in the present patent application to be patentable over these references, as well, whether the references are taken individually or in any combination.

In the cover page Form PTOL-326 of the Office Action mailed on June 9, 2004, there is an indication that

Appln. No. 09/887,576  
Amdt. dated August 31, 2004  
Reply to Office Action of June 9, 2004

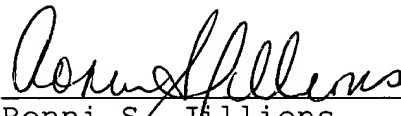
Applicant's PTO-1449 forms were attached. However, Applicant did not receive these forms with the Office Action. Applicant hereby requests that the Examiner consider and cite the references provided in the Information Disclosure Statements filed on October 1, 2001, October 27, 2003, February 23, 2004, and July 27, 2004, and confirm same by returning the initialed PTO-1449 forms.

Applicant believes the remarks presented hereinabove to be fully responsive to all of the grounds of rejection raised by the Examiner. In view of these amendments and remarks, applicant respectfully submits that all of the claims in the present application are in order for allowance. Notice to this effect is hereby requested.

If the Examiner has any questions, he is invited to contact the undersigned at (202) 628-5197.

Respectfully submitted,

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